TRANSPORT POLICY IN THE EU AND POSSIBLE IMPACTS ON REGIONAL DEVELOPMENT AND MOBILITY

1. Introduction
The extent to which the EU succeeded in implementing the common transport policy in Europe was very limited during the first thirty years of its existence. Transport policy was in a position of isolation for many years. Provisions for a common transport policy were contained in The Treaty of Rome (1957). However, implementation progress was very slow. Now, we are experiencing the consequences of the Single European Market: in the EU, frontiers were abolished, there is a freedom of movement for people, goods and capital. This also requires an internal market for transport and therefore emphasis is given to the development of the European transport networks. It was necessary for the Community to increase the level of investment in transport infrastructure, because adequate interconnections between national transport networks were missing.

The main aim of this paper is to illustrate the consequences that the future European transport networks may have on EU countries regional development, especially in the context of the core-periphery pattern.

For this purpose, the paper has been structured as follows:
• firstly, the common transport policy and its different stages are illustrated;
• secondly, the nature of transport TENs and financial problems linked to the implementation of these infrastructures are analysed;
• thirdly, the impact of TENs on the regional development and on mobility of factors is discussed by using the Krugman model.

2. Common transport policy and its stages

The extent to which CTP succeeded in Europe was very limited in the first thirty years of its existence. The measures were related to the aspects of harmonisation and reduction in discriminatory practices. The Treaty of Rome (1957) contained provisions for a CTP (Articles 3e and 74-84). CTP required common rules for all cross-border traffic, forbid discrimination in transport charges and called for reductions in the costs of crossing frontiers. It prohibited general subsidies to transport undertakings but permitted state subsidies for the co-ordination of transport or for public service obligations, or as part of regional assistance. This meant that there were two approaches. Some states gave priority to the establishment of non-discriminatory competitive conditions in the transport market, whereas other states preferred the regulatory approach. This naturally created conflicts. The principles and guidelines to be followed by CTP were set down in the Schaus Memorandum of 1961 and in an action programme of 1962. The proposed measures were mainly the following:

• anti-discrimination measures: intended to eliminate discrimination between Member States and between different modes of transport;
• liberalisation measures: carriers were to be given additional opportunities to supply services across national frontiers within the EC;
• harmonisation measures: proposed standardisation of provisions, across Member States, relating to such matters as the weights and dimensions of road vehicles, taxation of vehicles.
However, progress in implementing many of these measures was very slow. Transport markets were highly regulated and the Schaus’ ideas were set aside. Another factor was represented by the different interests between Member States. Some favoured harmonisation measures, which might strengthen their own competitive and financial position, others favoured liberalisation measures, because they believed they would benefit from greater access to other Member State markets.

When three new Member States (1973) entered the EU, the Commission re-defined the objectives of transport policy. The main concern was to rescue transport policy from the position of isolation. It emphasised the relationship with other Community actions. The object was to align national transport policy systems for the carriage of goods and passengers at Community level and adjust them to the needs of the economic union. A community transport system should consist of a common infrastructure and a common transport market. This covers the area of planning and financing the whole network of transport routes and an area of regulative policy (the organisation of the transport market). The 1973 Action Programme stressed on the right to freedom of community transport operators to provide services throughout the EU and on the creation of a harmonised competitive transport market. There were four priority areas selected in the Action Programme:

1. the creation of a Community network transport plan;
2. the development of criteria for the allocation of infrastructure costs between modes of transport;
3. the role of railways in the Community’s transport plan;
4. planning the development of the inland transport market.

Even more attention has been paid to common transport policy since the mid-1980s and has it focused more on liberalisation
than harmonisation. In 1980 the Commission issued a list of 35 proposals for action over the next three years. The Council didn’t respond to these proposals and this together with the fact that there was a lack of progress regarding the creation of the common policy in transport led the European Parliament (supported by the Commission) to take the EU Council of Ministers to the Court of Justice in 1983. The judgment of the European Court of Justice in May 1985 required the Council of Transport Ministers to adopt measures to liberalise transport services within a reasonable time.

The abolition of frontiers and the implementation of the freedom of movement for people, goods and capital could not be conceived without an internal market for transport. This gave new impetus to the development of the CTP. Consequently direct (elimination of segmented national markets, phase removal of licences and the granting of cabotage) and indirect (removal of checks on internal frontiers) measures towards the creation of a common transport policy were included in the 1992 Programme. Commitment to the establishment of the Single European Market by 1993 broke the log-jam of policy development. In the document which set the scene for creation of the Single European Market, the Cockfield Report, a number of transport issues were raised. With regard to international transport of goods by road between Member States, the key points included the need to phase out the quantitative restrictions (quotas) and to establish the conditions under which non-resident carriers could operate transport services in another Member State (cabotage). The Council of Minister drew up a list of four principles to guide the liberalisation of transport markets. These were quality of treatment within and between different forms of transport, freedom of competition, free choice of uses and co-ordination of infrastructure, and the need to develop policies with respect to the environment based on the polluter-pays principle. However, one
of the weakness of the CTP is its failure to establish a clear system of infrastructure pricing that can take account of the social and environmental costs that each mode of transport imposes.

In a report called "The Future Development of the Common Transport Policy" the Commission indicated how the CTP might evolve in the future. It identified three main goals:

1. the removal of any remaining restrictions or distortions in the single market;
2. the proper functioning of EU transport systems;
3. the integration of environmental objectives within the CTP.

Subsequently, it published its Common Transport Policy Action Programme 1995-2000 to promote the attainment of these goals.

3. Trans-European Networks and financial problems

The concept of trans-European networks was born in the 1993 White Paper on Growth, Competitiveness and Employment. TENs concern not only transport but also the energy and telecommunications. The European Union has a single market but this market needs to be improved by better transport, energy and telecommunications infrastructures. The European Council agreed with the conclusions of the European Commission's White Paper on Growth, Competitiveness and Employment that TENs were essential to any effort to achieve a significant cut in unemployment by the year 2000. At the 1994 Essen summit, EU leaders agreed to draw up a priority list of 14 transport projects. These projects reflect the priority to promote alternatives to road transport. About 80% of the total investments are on rail links, 9% is on road/rail links and only 10% are on new road building. The 14 priority projects are only part of the transport networks. The cost for the total network is estimated to be more than 400 000
million ECU until 2010, the total cost of the TENs priority projects is around 110 000 million ECU. Some of the time-scales proposed for the 14 priority projects were unrealistic, given the technical, legislative and administrative hurdles; others were unable to attract sufficient financing. Financing of large projects remains one of the biggest burdens of TENs. One of the major provider of loans for TENs projects is the European Investment Bank, while the EU provides from its budget money for studies and for the loan guarantees and interest rate subsidies. Other possibilities for financing come from Structural Funds and the European Investment Fund. The 14 TENs projects endorsed in 1994 were offered some special conditions, for example longer maturities for loans and grace periods for repayment of principal and even payment of interest.

What is the EU’s role in building TENs? Member States have the main responsibility for creating transport networks. Decisions should be taken at a political level, which is closest to the citizens. It is believed that according to this principle the desired objectives can be best achieved. However, EU has an important role, too. It takes project proposals from Member States and turns them into a network design, encourages pushing the projects forward and tries to solve financial and regulatory obstacles. Its task is to identify projects of common interest, to support these projects by financing studies, to provide loan guarantees or interest rate subsidies and to ensure that the networks are interoperable, which includes for example technical standardisation.

There are some geographical characteristics in countries of the EU that make transport policy more difficult. The population of the EU is distributed unevenly. Very large concentrations are in North-Western Europe roughly bounded by Liverpool, Hamburg, Munich, Geneva, Paris, Le Havre and Southampton.
Another large concentration is in the South of the Alps with Genoa, Turin, Milan and Venice. In these areas there is a very intense concentration of economic activity as well. This leads to a large portion of traffic flows across Europe. However, to the North and South there are some geographical obstacles to cross given by the Channel and the Alps.

Problems in transport are connected with regional development as well. The nature of transport systems within Europe varies among countries. Causes of such differences can be of a variety of geographical, historical and political nature. The core area of the EU has a well-established transport infrastructure, because the development in Europe has been focused at its centre. Most of the industrial, service and financial power is concentrated in the area called "Blue Banana"\textsuperscript{1}. The "Sunbelt"\textsuperscript{2} region in the South represents a more recent development. The top 20 most productive regions in the EU are located in or adjacent to the "Blue Banana" or the "Sunbelt". These are locations with the best ground transport infrastructures. On the other hand, areas with lack of a modern infrastructure and a tradition in skill-based activities failed to attract high technology manufacturing, and in many locations there is a net outflow of population. There is fear that growth will continue in the core areas at the expense of the peripheral regions in Europe.

In addition, Member States assign different levels of importance to each mode of transport in their investment programmes. The attitudes of Member States depend on the economic geogra-

\textsuperscript{1} "Blue Banana" is an area extending from London and Birmingham in the North, through the Benelux countries and the Rhine corridor to Switzerland and the Northern Italian cities of Milan and Turin.

\textsuperscript{2} "Sunbelt" is an area extending along the Northern Mediterranean coast from Italy through Southern France to Barcelona and Valencia in Spain.
phy. Not the same transport systems in every country were developed. In smaller countries such as the Benelux States, road freight transport is particularly profitable over short distances. On the other hand, in Germany or France railways are more used, because of longer distances.

When working on European infrastructure plans, each Member State takes into account its developed national transport systems and strategies. For example, a state where a high proportion of traffic is carried by rail and which is located on a transit route will want to limit the number of lorries entering. Benelux countries, the United Kingdom, Denmark, Greece and Ireland are in favour of freedom of movement in the Community for their road haulage and inland waterway companies. This enables them to maintain transport operations in a large economic area. Contrarily, Germany and Italy want to harmonise the conditions of competition, because it protects their own road haulage companies and their national railways. France is an example of a country that stands in the middle. This is why divergent opinions and strong conflicts of interests among Member States arise. It is more effective to coordinate this activity internationally, but divergent interests make co-ordination more complicated.

Financing of infrastructure projects seems to be the biggest problem. In the Schaus Memorandum it was recognised that the co-ordination of infrastructural investments was recognised to be very important, because otherwise investment decisions by Member States are based on national priorities. Studies that focused on this problem confirmed inadequacies of national transport planning. It did not become CTP issue until the late 1970s, when it became evident that adequate interconnections among national transport networks were absent. In 1978, the Commission proposed the creation of a Transport Infrastructure Committee that was made up of Member States representatives.
They were supposed to consider national infrastructure programmes in the context of a Community transport network development. The Commission continued to identify the likely future transport needs of the EU up to the turn of the century. But the Council resisted the more active role for the Community in planning, evaluating and financing projects of Community interest. In 1981, the Council asked the Commission to evaluate the Community interest in a limited number of specific projects. The total cost to the EU budget had to be 968 million ECU, to be distributed over the years 1984-1986. The maximum support was 20% of the cost of each project. 250 million ECU were to be spent on rail projects and 550 million ECU on roads. The European Parliament was critical on this road bias, which was reflected in the 1986 Medium Term Transport Infrastructure policy. It described the deficiencies of the European transport network, the ways in which the Community could take action to resolve them and it identified the needs for overall financial investments in infrastructures. Objectives were the following:

- to improve transport communications in land-sea corridors;
- to reduce the transport costs incurred within transit countries and to develop combine transport (road/rail);
- to integrate the peripheral regions within the EC’s network;
- to construct links offering a high level of service between major Member State cities, particularly high-speed rail networks.

There was an attempt to concentrate funding under Specific Transport Instruments, but some Member States didn’t support this idea. Much larger financial support for transport infrastructure was available through the European Regional Development Fund (ERDF). According to the Commission estimates approximately 16 000 million ECU had been invested in transport infrastructures through the ERDF from 1975 to 1993. The European Investment Bank loaned about 14 000 million ECU for financing
transport infrastructures between 1982 and 1991. Financial support for these types of transport infrastructure investments continues to be provided through the Cohesion and Regional Development Funds. In 1988, the Commission submitted a four-year plan extending to 1992, which coincided with the introduction of the Single Market. Again, there was resistance from the Council and the Commission presented more modest proposals, which concentrated available resources on a limited number of projects regarded as the most important. This proposal was accepted in November 1990. Similar provisions were made for 1993 and 1994. In 1992, the Treaty on the European Union came into effect. Provisions for the development of trans-European networks in the area of transport, telecommunications and energy were made explicit. Guidelines that would cover objectives, priorities and broad lines of measures were required. The Financial Regulation for TENS was adopted in 1995. The annual EU funding of TENS is planned to grow from less than 200 million ECU in the early 1990s to nearly 500 million ECU by the turn of the century.

4. The development of transport TENs and its impact on regional development and mobility

The development of transport TENs may have an impact on the international trade. One question arises: what kind of changes are going to occur in the location of factors of production in space? One interesting example is the United States. This is a country that could be compared to European Union internal market. If we have a look at the concentration of the population in the United States we may notice that in a generally sparsely populated country, most of the concentration is in a few metropolitan areas and especially along the East Coast. Manufacturing, for example car industry, is concentrated in a few locations. What does the location of manufacturing in the European Union look like and what are the factors that influence the geographical con-
centration? Will the changing transport networks and transportation costs affect the development of the core-periphery\(^3\) pattern? What countries are likely to gain the most and will some countries loose? These are important questions that have to be considered when studying transport policy.

The consequences of the development of the European transport network can play a great part in the further regional development and international pattern of trade. Therefore, the Krugman’s model is now illustrated to partly explain the development of the core-periphery pattern. For this purpose a model of two regions is considered. Two industries, agriculture and manufacturing, are assumed to exist: agriculture is a sector with constant returns to scale and is tied to the land; manufacturing is a sector with increasing returns to scale and can be located in either region. Because of the economies of scale, the production of each manufactured good will take place at a limited number of sites only, in places with large nearby demand to minimise transportation costs. Other locations will be served from these centrally located sites. Contrarily to agriculture, manufacturing has differentiated products. The fraction of income spent on goods is denoted by \(h\). All individuals in the economy are assumed to have a utility function:

\[
U = C_M^\mu C_A^{1-\mu}
\]

where:
- \(C_A\): consumption of the agricultural goods
- \(C_M\): consumption of the manufactured goods

3. Core-periphery pattern – notion used by P. Krugman, meaning that manufacturing is concentrated in the central area, while outer regions play the role of the agricultural periphery.
\[ C_M = \left[ \sum C_i^{(\sigma-1)} / \sigma \right] ^{\sigma/(\sigma-1)} \]

where:
\[ i = 1, ... , N \]
N: large number of potential products
\( \sigma \): elasticity of demand; \( \sigma > 1 \)

There are two factors of production in each region. Each factor is assumed to be specific to one sector. Workers in the agriculture sector cannot move between regions, contrarily the workers in the manufacturing.

\[ L_1 + L_2 = \mu \]

where:
\( L_1 \): worker supply in region 1
\( L_2 \): worker supply in region 2

\[ L_{Mi} = \alpha + \beta x_i \]

where:
\( L_{Mi} \): production of the variety \( i \) - since in the sector of manufacturing, workers are producing different varieties
\( \alpha \): represents fixed costs, which gives rise to the increasing returns of scale
\( \beta \): represents marginal costs
\( x_i \): output of goods

Suppose that there are many manufacturing firms, each producing a single product. To determine the optimal price at which the firm maximises its profit we set \( MC = MR \), where:

\( MC \): marginal costs
\( MR \): marginal revenue

\[ P_i = [\sigma / (\sigma-1)] \beta w_i \]
where:
$P_1$: price of the product
$w_1$: wage rate of workers

The level of output per firm is the same in each region and is equal to:
$x_1 = x_2 = \frac{\alpha (\sigma-1)}{\beta}$

The number of firms comes from the full employment condition:
$L_1 = \sum (\alpha + \beta x_i) = n_1 (\alpha + \beta x_i)$

so

$n_1 / n_2 = L_1 / L_2$

where:
$n$: number of varieties

Since all $x$ are equal, the number of varieties depends on $L$.

What are the necessary conditions for manufacturing concentration according to the Krugman's model? Assume all manufacturing workers are concentrated in region 1. Then the proportion of the world income that goes to region 1 is:

$Y_1 = \frac{1+\mu}{2}$

Total manufacturing income is in region 1 and at the same time this region has half of the agricultural income.

$\mu + \frac{1- \mu}{2} = \frac{1+\mu}{2}$

The proportion of the world income that goes to region 2 (where there is no manufacturing) is:

$Y_2 = \frac{1- \mu}{2}$
\[ Y_2 / Y_1 = (1 - \mu) / (1+\mu) \]
The value of sales of the representative firm is:

\[ V_1 = [\mu (Y_1 + Y_2)] / n \]

where:

\( n \): number of varieties

Would it be profitable for some workers to leave region 1 and move to region 2? Only if there are some transportation costs between region 1 and region 2 would the workers who move save on transportation costs. Krugman considers two assumptions. First, transportation of agricultural output will be costless. This rests upon the assumption that agricultural products are homogeneous, thus each region is either exporting or importing them, never both. Second, only a fraction of each unit of manufactures shipped from one region to the other arrives \((\tau<1)\). Fraction \( \tau \) is an inverse measure of transportation costs. Since only a fraction \( \tau \) of each product shipped actually arrives, manufacturing goods cost \( 1 / \tau \) more in region 2. Therefore workers in region 2 would need to be compensated, even though they are producing one variety in region 2. They still want to consume other commodities that are produced in region 1 and are being shipped.

\[ w_2 / w_1 = (1 / \tau)^\mu \]

- this ratio will be greater than 1 ensuring that \( w_2 > w_1 \)

Considering the elasticity of demand is \( \sigma \), we have the elasticity of demand for each variety:

\[ C_{11} / C_{12} = (P_{11} / P_{12})^{-\sigma} = (P_{11} \tau / P_2)^{-\sigma} \]

where:

\( P_{11} \): price of a product in region 1 produced in region 1, there are no transportation costs
P_{12}: price of a product in region 1 but produced in region 2, because there are transportation costs \( P_{12} = P_2 / \tau \)

The relative expenditure is:

\[
P_{11}C_{11} / P_{12}C_{12} = (P_{11} \tau / P_2) (P_{11} \tau / P_2)^{-\delta} = (P_{11} \tau / P_2)^{- (\delta - 1)}
\]

Now we can consider the value of sales of the firms that would move to region 2 and then compare it with the value of sales of the firms in region 1.

\[
V_2 = \mu / n [(w_2 / w_1 \tau)^{- (\delta - 1)} Y_1 + (w_2 \tau / w_1)^{- (\delta - 1)} Y_2]
\]

The term \((w_2 / w_1 \tau)\) represents the disadvantage in selling the products produced in region 2 to region 1 and the term \((w_2 \tau / w_1)\) represents the advantage of firms in region 2 in selling goods in region 2. The advantage of selling in region 2 is caused by no transportation costs.

\[
V_2 / V_1 = [(w_2 / w_1 \tau)^{- (\delta - 1)} Y_1 + (w_2 \tau / w_1)^{- (\delta - 1)} Y_2] / (Y_1 + Y_2)
\]

\[
Y_1 / (Y_1 + Y_2) = (1+\mu) / 2
\]

\[
Y_2 / (Y_1 + Y_2) = (1- \mu) / 2
\]

\[
V_2 / V_1 = 1/2 \tau \mu (\delta - 1) [(1+\mu) \tau ^{\delta - 1} + (1- \mu) \tau ^{\delta - 1}]
\]

If moving to region 2 has to be profitable, the \( V_2 / V_1 \) ratio should be greater than the ratio of fixed costs.

Are there any implications for EU countries? Suppose transportation costs are lower when TENs are implemented and suppose that at present transportation costs are sufficiently high, which implies that it is worth for some firms to move to a second region and set up a factory. If this is the case, people moving to region 2 would produce one variety of products for region 2 at lower prices, as they avoid the transportation costs. On the other
hand they would like to consume other commodities that are produced in region 1, that are more expensive for them, because of transportation costs. Therefore, workers in region 2 would need to be compensated and it would be worth to move only if the value of their sales relative to the value of the sales of the firms in region 1 is greater than the ratio of fixed costs. We can express the ratio of fixed costs in terms of labor necessary to build a factory.

\[ \frac{V_2}{V_1} > \frac{w_2}{w_1} = \tau^{-\mu} \]

This implies that if \( \frac{V_2}{V_1} / (w_2 / w_1) > 1 \) then it is profitable for some firms to move to region 2. Under what circumstances will this happen? There are three important parameters:

- \( \delta \): inverse measure of the importance of economies of scale
- \( \tau \): inverse measure of transportation costs
- \( \mu \): fraction of income spent on manufacturing goods

From the previous equations we can derive the following:

\[
\frac{1}{2} \tau^{\mu \delta} [(1+\mu) \tau^{-1} + (1- \mu) \tau^{-(\delta+1)}] > 1
\]

This equation should be greater than 1 in order to create incentives for some firms to move. Out of these three parameters what I was most interested in was how transportation costs influence the possibility of industrial concentration. With the implementation of TENs, this relationship can play a major role in regional development. Because of the continuous trade integration, transportation costs are expected to be lower. What may contribute to the lowering of costs is for example the abolition of customs frontiers, what has to be considered is the tremendous time savings. Thus, regions according to the Krugman’s model can become less similar and there will be greater concentration of industry. But transportation costs are not the only parameter that
may influence the development of the core-periphery pattern. A small change in any of the three parameters can lead to the concentration of population and regions can start to diverge.

If there is no transportation costs, meaning \( \tau = 1 \), the equation would be equal 1. But we are interested in the cases where there are transportation costs. If \( \tau \) is very small, the first term in the square brackets would go to zero. Since \( \delta \) is greater than 1, \( \tau \) in the second term in the square brackets is raised to the negative power \( \tau \), thus the term would likely be big and the whole equation would be greater than 1. Because low \( \tau \) means high transportation costs, as transportation costs increase, the possibility of industrial concentration decreases. In other words, if transportation costs decrease, the probability of development of the core-periphery pattern is bigger.

4. Final remarks

Which are the possible impacts of transport TENs on regional development?

In the EU, there is a considerable geographical imbalance with concentration of population and economical activities in some areas, whereas other areas are getting depopulated. Islands or outer regions have difficulties with the possibility of access and there is a positive relationship between such regions and the related lower living standards. Therefore, a lot of attention is paid to outer and island regions that should have good connections with central regions. When improving transport connections, outer regions become more attractive to investments, because it is easier for inputs to access the region. Also outputs have a better access to the markets. Thus, peripheral regions will have easier contacts with central areas. Better transport connections can contribute to the short as well as long-term employment. Investments into infrastructures are the least criticised, because they can employ even the less qualified people. In future,
the new infrastructure will help people to be more mobile. It seems that if at least the majority of the planned projects are implemented, the European transport system will support a more balanced usage of its whole area and will contribute to the decrease of regional disparities.

According to the Krugman's model, as transport costs decrease, geographical concentration of manufacturing is more likely, because with better and less expensive transport systems, people do not need to produce everything for themselves and manufacturing takes place only at limited sites because of economies of scale. With continuous trade integration and lower transport costs, regions can become less similar. Will this view hold for European countries? According to the model, if transportation costs decrease below a particular level, the core-periphery pattern will develop. It is a question of below what level costs would have to decrease. Some argue that this will be the case and that TENS will enhance the centralisation of production and shift jobs away from where people live.

The planned transport net may cause concentration of population into some regions of a particular country, especially along the major routes. With a well-developed infrastructure, for example, more distribution warehouses can be replaced by only one that would serve a larger area. If we have a look at the history and the places of concentration of economic activities, we realise that concentration was closed to the locations of raw materials. Nowadays, Europe is more dependent on imports of raw materials and the locations of concentration are close to transport networks.

It is a question how fast and how precisely according to the plans the high-speed infrastructure will be developed. If there is some delay, difficulties with finance or environmental disputes, some area will risk to stay faraway from the European transport network and thus loose the chance to attract new investors. But there should not be any increase in the disparities between EU member countries as with better connections between regions on
the periphery of the EU and regions in the centre, outer regions can become more competitive. With better transport connections and accessible area they have a chance to attract new investors. Co-operation between transport and regional development can help to enable this.

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